THE MILE MARKER

A CALTRANS PERFORMANCE REPORT

2015 Fourth Quarter Issue

In This Issue

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Caltrans' Mission

is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

The Mile Marker Purpose Statement

The purpose of the *Mile Marker* is to provide a transparent, plain-language accounting of Caltrans' performance.

Cover photo: A torrential downpour of more than 3 inches of rain in 45 minutes, covered State Route 58 with tons of mud in early November.

Photos pages 2 and 3 and back cover: Caltrans Maintenance crews were quickly on the job, reopening the highway to traffic.

Photos by Florene Trainor, Caltrans District 9.

Message From The Caltrans Director

In this month's Mile Marker, we continue to use this Performance Report to clearly articulate to all stakeholders how we are doing on many prescribed metrics that make up goals established in our 5 year Strategic Plan.

Throughout the document there are undertones and indications of successful collaboration with local partners, resource agencies, federal funding partners, the general public, as well as contractors and consultants. When we work together on our common objective to improve safety and mobility for all transportation system users, we can reach greater levels of success in stimulating our economy and improving our quality of life. As an organization and a leadership team, we will look to maximize the effectiveness of these partnerships in the upcoming year.

In order to gauge how we are doing on many aspects of our Organizational Excellence Goal, we recently conducted an External Stakeholder Survey. The results were very telling and they become the benchmark for measuring our improvement going forward. With nearly 600 respondents, the results offered insight into how we can improve communications and better collaborate on tasks to achieve jointly held objectives. There are more specific results from this survey on *page 34*.

We have made some significant accomplishments over the past year due to the hard work and dedication of our employees. Nothing illustrates this better than our responsiveness to recent emergencies such as the fires in Northern California, the mudslides on I-5 and SR-58 in Central and Southern California, and the washout of the Tex Wash Bridge on Interstate 10 in July. In response to that incident, essential travel was restored within 5 days by constructing a cross-median detour, and a complete new bridge was constructed within 67 days to permanently replace the critical infrastructure between California and Arizona and beyond.

We also had major accomplishments in our Project Delivery and Planning Programs that continued to represent our leadership role throughout California. We've made significant strides in advancing our Asset Management Program (*article on page 8*), and we approved our Strategic Highway Safety Plan which lays out the framework for a five-year action plan to improve safety and move Towards Zero Deaths *(article on page 15*).

And last but not least, I was incredibly impressed with the work that went into the implosion of the largest of the marine foundations from the old Bay Bridge (*article on page 18*). This innovative work saved time, money, and was the least environmentally impacting alternative. It just goes to show you what can be accomplished when you allow highly skilled professionals to think and work outside the box!

I hope you enjoy the latest version of *The Mile Marker - A Caltrans Performance Report.*

Malcolm Dougherty
Director of Caltrans

Performance Measures	Targets	
Goal 1: Safety and Health		
Worker fatalities in work-zones	Zero per calendar year	
Auto fatalities per 100 million vehicle miles traveled	0.5 or less	
Bicycle, pedestrian, and transit-rider fatalities	Reduce by 10% annually	Pedestrian
		Bicyclist
Increase and improvement in opportunities for safe and accessible active transportation	100% of funds of allocated vs. programmed	Allocated
	100% of projects allocated for construction awarded within six months	Awarded
Goal 2: Stewardship and Efficiency		
Distressed lane miles on state highway system	By FY2024–25, no more than 10% of pavement is distressed.	
Bridge Health Index	By 2020, maintain 95 or better rating on Bridge Health Index.	
Intelligent Transporation System elements	By 2020, at least 90% ITS elements healthy.	
Planned projects delivered in fiscal year	100%	
Caltrans contracts and procurements awarded to disadvantaged business enterprises	Award 12.5% annually	
Goal 3: Sustainability, Livability and Economy		
Use of non-auto transportation	By 2020 Triple percentage of trips on bicycle Double percentage of trips using pedestrian routes Double percentage of trips using transit *From 2010-12 California Household Travel Survey baseline (1.5%, 16.6%, 4.4% respectively)*	Bicycle Pedestrian Transit
Pollutants from Caltrans operations for: Greenhouse gas (GHG) emissions	By 2020, reduce Caltrans' internal operational pollutants by District from 2010 levels (from planning, project delivery, construction, operations, maintenance, equipment, and buildings) including: 15% reduction by 2015 and 20% reduction by 2020 of Caltrans' GHG emissions per EO-B-18-12.	GHG

Photo provided by Patrick Kyo

Target Met (by Period)	Current Period	Previous Period	Period Change	Current Period Trend	Desired Trend
"Provide a safe transportation system for workers and users and promote health through active transportation and reduced pollution in communities."					
✓	0 (Jan-Sep15)	0 (2014)	0	↔	↓
–	0.67 (2012)	0.66 (2011)	.01	↑	↓
✓	187 (2012)	216 (2011)	-13.4%	↓	↓
–	26 (2012)	17 (2011)	52.9%	↑	↓
–	77% (as of 9/30/2015)	73% (FY2014-15)	4%	↑	↑
–	89.2% (as of 9/30/2015)	Not previously reported	–	–	↑
"Money counts. Responsibly manage California's transportation-related assets."					
–	16% (2013)	25% (2011)	-9	↓	↓
✓	96.3 (FY2013-14)	95.6 (FY2012-13)	0.7	↑	↑
–	65% (Jul-Sep15)	66% (Apr-Jun15)	-1	↓	↑
–	98% (FY2014-15)	98% (FY2013-14)	0	↔	↑
–	12.44% (FFY 2014-15)	11.89% (FFY 2013-14)	0.55	↑	↑
"Make long-lasting, smart mobility decisions that improve the environment, support a vibrant economy, and build communities, not sprawl."					
–	1.5% (2012)	.8% (2000)	0.7	↑	↑
✓	16.6% (2012)	8.4% (2000)	8.2	↑	↑
✓	4.4% (2012)	2.2% (2000)	2.2	↑	↑
✓	157 metric tons (2014)	199 metric tons (2013)	-21%	↓	↓

Performance Measures	Targets	
Goal 4: System Performance		
Travel-time reliability	By 2020, one-tier improvement on a three-tiered reliability scale for specified corridors · Reliable travel range is 0-20% · Moderately unreliable travel range is 20-40% · Unreliable travel range is more than 40%	**SR-57** Northbound - p.m. Orange Co. only **I-110** Northbound - a.m. Harbor Fwy. only **I-80** Westbound - a.m. Contra Costa & Alameda Co's. **I-210** Westbound - a.m. I-605 to SR 134
Percentage of intercity rail trips that reach final destination on time	90% by 2020	
Rate of growth in daily vehicle hours of delay (35 mph or less)	By 2020, less than 8% growth rate	
Goal 5: Organizational Excellence		
Percentage of employees who indicate that they work in a positive environment.	Improve 5% annually through 2020	
Percentage of employees who agree that innovation is encouraged in Caltrans	Achieve 75 percent In 2016 and maintain through 2020	
Percentage of Caltrans employees who say management is open and honest with them	50% in 2015, improve 5% annually through 2020	
Percentage of external survey respondents who say Caltrans does a good or excellent job meeting their needs	Achieve 75% by 2016, then maintain or improve through 2020	
Stakeholders who say Caltrans' communication, professionalism, and service levels have improved	Establish baseline in 2015, followed by 5% annual increase	
Stakeholders who give positive feedback on The Mile Marker	Establish baseline in 2015, followed by 5% annual increase	
Partners who agree or strongly agree that Caltrans is a collaborative partner.	Achieve 75% by 2016, then maintain or improve through 2020	

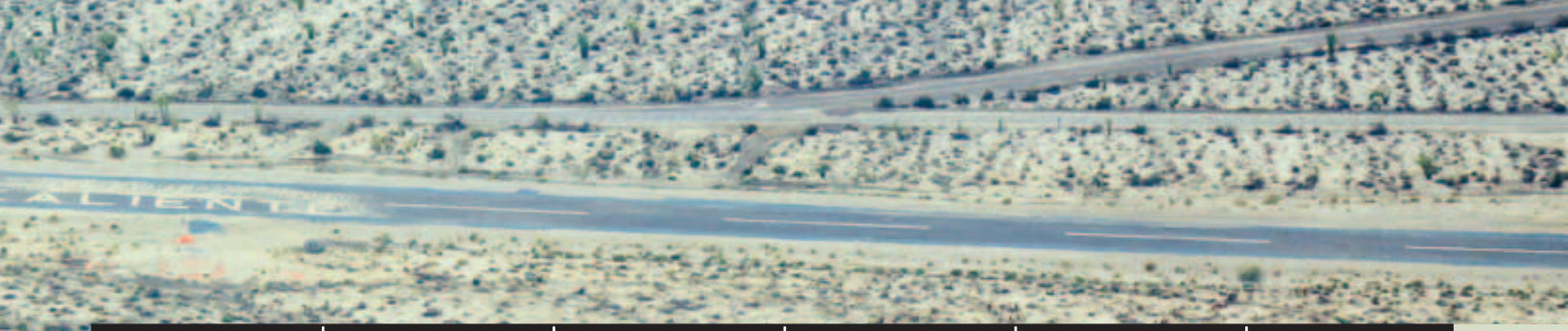


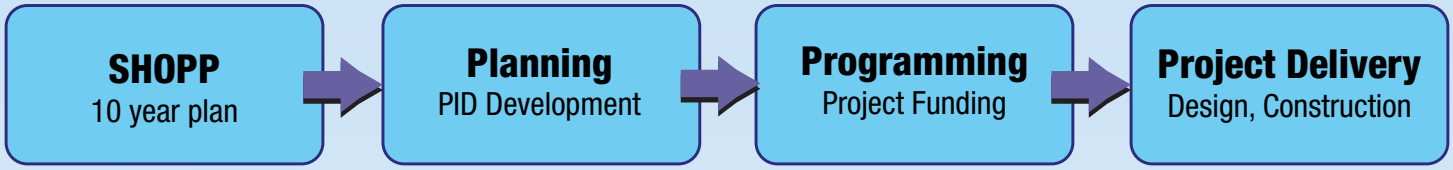
Photo provided by Patrick Kyo

Target Met (by Period)	Current Period	Previous Period	Period Change	Current Period Trend	Desired Trend
"Utilize leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers."					
–	Unreliable (Jul-Sep15)	Unreliable (Jul-Sep14)	N/A	↔	↓
–	Moderately unreliable (Jul-Sep15)	Moderately unreliable (Jul-Sep14)	N/A	↔	↓
–	Unreliable (Jul-Sep15)	Unreliable (Jul-Sep14)	N/A	↔	↓
–	Unreliable (Jul-Sep15)	Moderately unreliable (Jul-Sep14)	N/A	↑	↓
–	83.3% (SFY2014-15)	85.5% (SFY2013-14)	-2.2	↓	↑
–	13.4% (2014)	15.8% (2013)	-2.3	↓	↓
"Be a national leader in delivering quality service through excellent employee performance, public communication, and accountability."					
–	50% (2015)	–	–	–	↑
–	40% (2015)	55% (2013)	-15	↓	↑
–	46% (2015)	53% (2008)	-7	↓	↑
–	40% (2015)	68% (2007)	-28	↓	↑
–	36% (2015)	–	–	–	↑
–	43% (2015)	56.7% (2014)	-13.7	↓	↑
–	40% (2015)	65% (2007)	-25	↓	↑

Asset Management

Caltrans Resets Business Model

Existing Project Planning Process



Caltrans is changing the way it manages transportation in California, adopting a mechanism that links the department's goals and objectives to the funding needed to minimize the life-cycle costs for managing and maintaining transportation assets, including roads, bridges, culverts and traffic management elements.

Guided by the 2015-2020 Strategic Management Plan unveiled in March, Caltrans seeks to ensure that every project, every plan, every activity will bring California closer to a safe, sustainable, integrated and efficient transportation system that enhances the state's economy and livability.

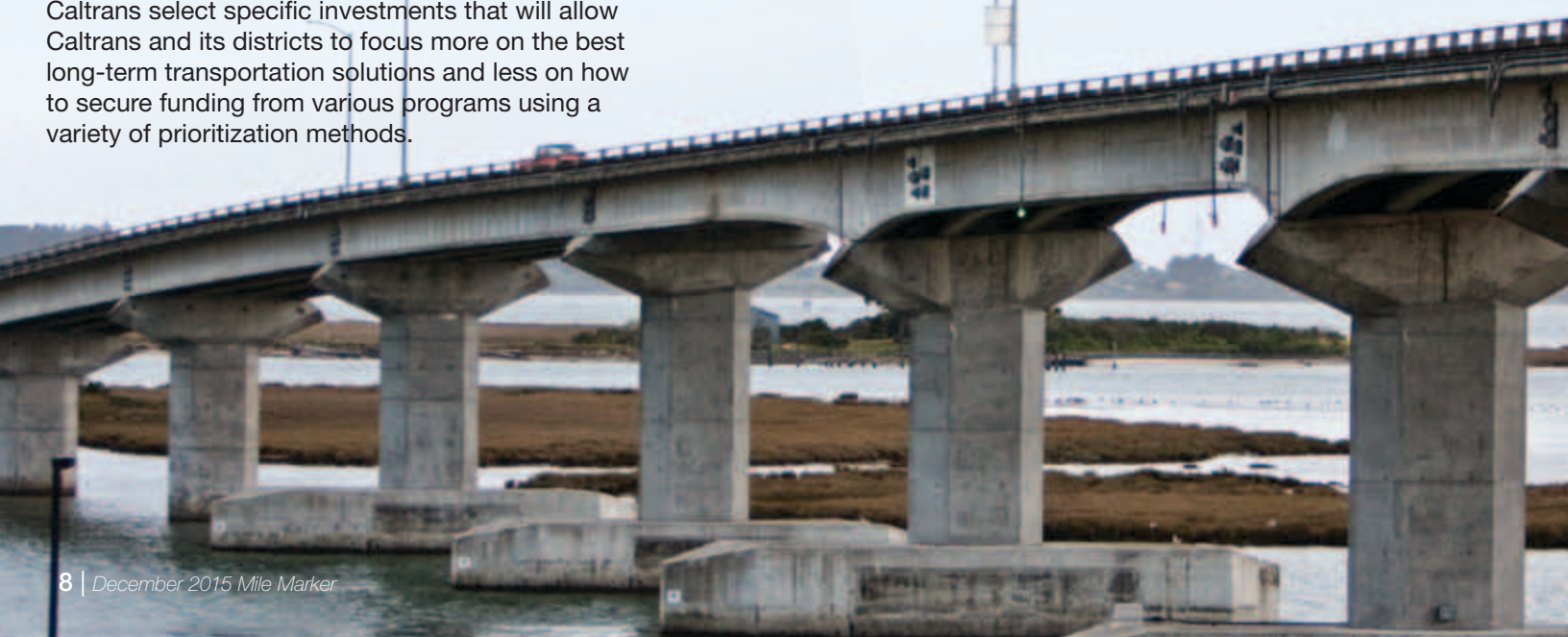
Caltrans is not alone. This new approach – Asset Management – is taking hold in departments of transportation around the country. Asset Management will change how Caltrans plans, funds and prioritizes its projects in measurable ways.

As the plan reaches maturity in 2020, it will help Caltrans select specific investments that will allow Caltrans and its districts to focus more on the best long-term transportation solutions and less on how to secure funding from various programs using a variety of prioritization methods.

Potential savings of this new selection process can be achieved through:

- Lowering project development costs, because what would have been, for example, three separate projects —one for pavement, one for a bridge and another to rebuild a culvert—are now made into one.
- Reinvest savings from efficiencies into more projects.
- Considering/incorporating the transportation needs of all users, including bicyclists, pedestrians and transit users, as well as the movement of freight into preservation, safety and mobility projects.
- Less frequent disruption of traffic, because several pieces of a project can happen simultaneously, rather than be spread out separately over time.
- Creating economies of scale in construction where Caltrans can reap possible cost savings by doing more at once.

Safety Light Poles installed across Woodley Island Bridge in Humbolt County.



The new process is better suited for meeting the transportation needs of all users, including bicyclists, pedestrians and transit riders.

Kicking Off a Pilot Project in Picking Projects

Under this new Asset Management model, projects will be picked according to how they align with Caltrans' mission, vision, goals and objectives such as sustainability, system performance and economy. Projects will no longer be looked at, designed and funded as individual pieces but instead as a sum of pieces that are interconnected and should be treated as a whole system.

Caltrans is running a pilot test process that prioritizes State Highway Operation and Protection Program (SHOPP) projects based on how well each project contributes to the objectives of the Department. The SHOPP is how Caltrans funds its projects along the state highway system that do not add any capacity, such as pavement and structure/bridge rehabilitation. So, a bridge project, for example, must not only span a stream but also provide environmental and sustainability benefits such as possible improvements to a watershed or the addition of a bike or pedestrian lane and ADA-compliant sidewalks. Caltrans has always taken into account conditions and performance of the primary asset involved and strategic objectives in the project but did not typically fund multi-objective projects nor was there a way to define the combined benefit of a multi-objective project.

Each SHOPP project that is nominated for consideration will be evaluated and prioritized against all other competing projects from around the state within the SHOPP. The result of this prioritization will be a clear and transparent presentation of benefits, costs and statewide project ranking, that will be used both internally to manage the SHOPP and externally to communicate what individual projects or a portfolio of projects will accomplish.

The prioritization will be completely data driven, and will provide a very transparent environment in which projects will compete against each other on a defined set of policies and objectives, all guided by the department's strategic goals. Such data-driven programs will lend themselves well to being integrated into software that will help track costs, inventory, conditions and maintenance throughout the life cycle of the projects.

Caltrans will work with its 12 districts, local transportation partners and the California Transportation Commission as it implements this plan.

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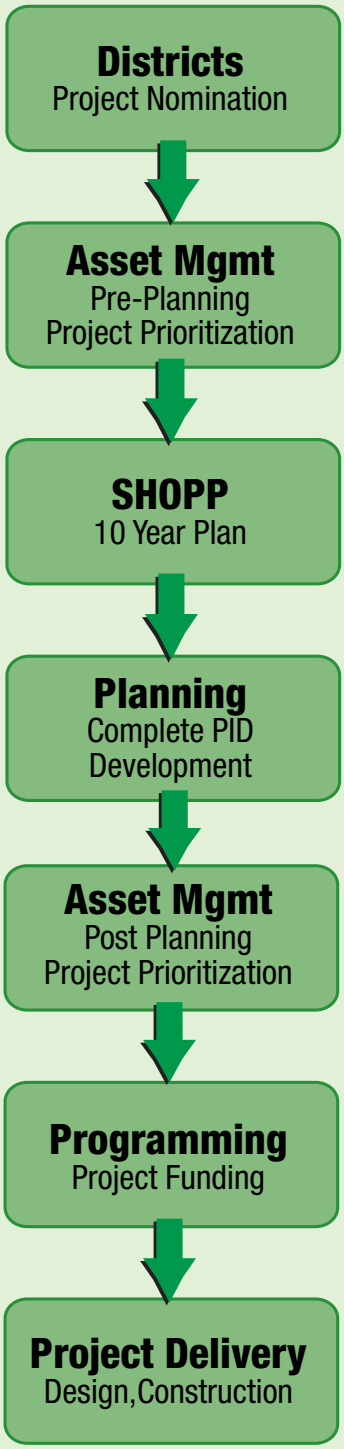
2020 SHOPP Project Planning and Development Process

As the Asset Management plan reaches maturity in 2020, additional steps will be added to the project planning process that will allow Caltrans and its districts to focus more on the best long-term transportation solutions.



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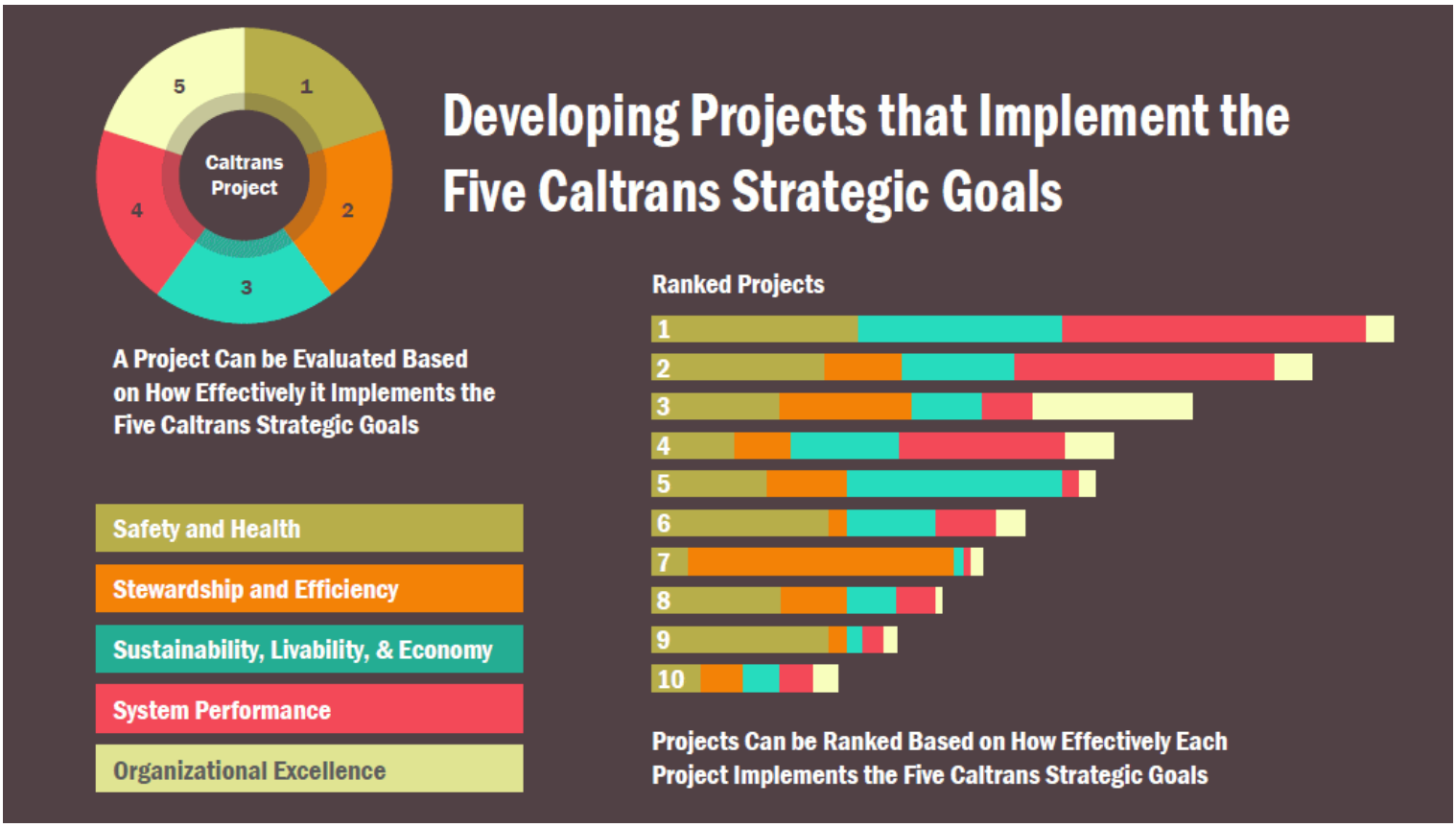


New Mandates for Work Already Underway

Several transportation departments around the nation already have similar asset management plans, and California's has been several years in the making.

On the federal level, there is now a federal requirement for asset management under the Moving Ahead for Progress in the 21st Century Act (*MAP-21*). MAP-21 requires states to develop an Asset Management plan for the National Highway System by 2018, calling out bridges and pavement in particular.

In July 2012, the Department issued the *Caltrans Program Review*, which expressed that, among other goals, "Caltrans must be open to restructuring, more dedicated to managing change and be receptive to improvement initiatives that focus on results." One of the specific areas identified to fulfill this goal was asset management. As a result, Caltrans said in its *Program Review Action Plan* that the Department will "fully commit to Asset Management of the state highway system infrastructure, with focus on its performance."

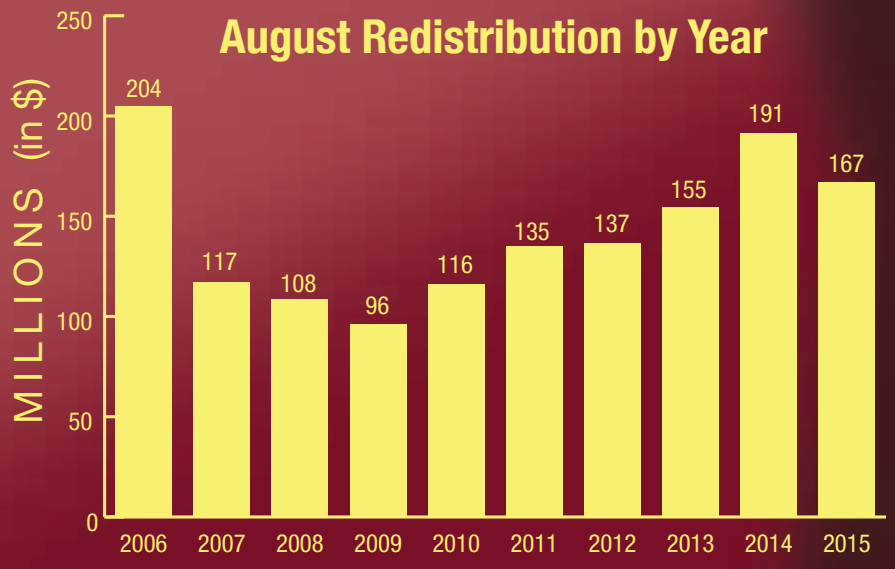
Add to this state legislation signed into law in September 2014 codifying that Caltrans must have a robust asset management plan in place to guide project selection before 2020. When complete, this transportation asset management plan will assemble all federal and state requirements into a single strategy that will help guide the development of the SHOPP.

With all this momentum behind asset management, Caltrans also appointed California's first state asset management engineer. This position reports to the chief deputy director and is in charge of coordinating the move to asset management across all divisions of the department. Caltrans will work with its districts, local transportation partners and the California Transportation Commission to ensure continued input as it phases in and implements asset management.

Expect to read more in future *The Mile Marker* issues as Caltrans continues to develop its asset management plan, data plans, software tools and business processes that will help maximize the benefits that California will get from available transportation funding.

Contributor: State Asset Management Engineer, Michael B. Johnson

Caltrans Earns Additional Federal Funds



Each year, Caltrans receives approximately $3.5 billion in federal funds – essentially every dollar that is available to the state from federal funds. As a result of its cash management projects, Caltrans then qualifies to receive even more.

The states receive federal funding for transportation projects each year. Any unused money is redistributed to those states that successfully use all of their federal funds and can use additional money in a very short period of time. This process is called the August Redistribution because it typically occurs at the end of each August.

Caltrans, in partnership with the local agencies, has succeeded in using all available federal funds and has competed for August Redistribution money. This year, California received $167 million, second only to Texas. California's share is greater than what is received by New York, Washington and New Jersey combined. Total funds received by California over the last decade exceed $1.4 billion, which is greater than any other state.

Caltrans typically passes about 38 percent of those dollars through to local agencies, while most of the rest is used to deliver the department's State Highway Operation Protection Program.

While California continues to search for long-term, sustainable funding, Caltrans is maximizing the receipt and use of both state and federal dollars, meaning more projects, more jobs and a more vibrant economy.

Source: Division of Budgets
Contributor: Athena Gliddon

Closing the I-215

It took a whole lot of steel, a space-shuttle-carrying vehicle and partnership with a railroad to build 7.5 miles of carpool lanes on Interstate 215 through Riverside and San Bernardino counties. But in the end, the I-215 Bi-County High Occupancy Vehicle Project filled in the gap to provide 70 miles of continuous carpool lanes that stretch from State Route 210 in the city of San Bernardino to the Los Angeles County line.

Doing so required far more than simply adding pavement along the existing roadway.

Sure, the carpool lanes themselves were added by rebuilding the outside and inside freeway shoulders and restriping the lanes to allow for three general purpose lanes and the new carpool lane in each direction. But the project also demolished and rebuilt the Newport Avenue Bridge, widened I-215 over I-10 and the Santa Ana River, repaved 7.5 miles of highway and added hardscape aesthetics along the corridor. Six 1.1 million pound steel trusses were also constructed and put in place – by the same technology that transported the much-lighter space shuttle – creating the new railroad bridges for Burlington Northern Santa Fe Railroad.

The $205 million project closed the gap between carpool lanes built north of Orange Show Road in San Bernardino and south of the 60/91/215 interchange in Riverside – a gap that existed three years since the previous lane extension was completed just to the north. The lanes are designed to encourage ridesharing through carpools and vanpools and improve the efficiency, safety and operations of traffic moving between the two counties.

The Project Approval/Environmental Document phase of work required the completion of a number of technical studies. Engineering studies included traffic volumes, mapping, public utilities, geotechnical reports, material reports, drainage and storm water reports and right of way needs. Environmental studies were conducted to determine how the project may affect the area. These included studies of noise, air quality, hazardous materials, water quality, floodplains, community impacts, cultural and historic properties and sensitive plants and wildlife.

Noise studies helped determine whether residential sound walls needed to be built next to the freeway and residents near potential sound wall locations were asked to participate in the process. The results of these studies were used to prepare drawings of the improvements, develop cost estimates and prepare for each phase of the project – final design,

Gap Project Adds 7.5 Miles of Carpool Lanes, Builds Rail Bridges

right of way acquisition and construction. All of this resulted in six sound walls built near schools and residential areas. The retaining walls, lined with red and brown river rock at the base, required less maintenance, coupled with concrete retaining walls that were etched with city icons – such as a train for the city of San Bernardino and mountains for the city of Grand Terrace (further down the road in Riverside, the walls contained images of oranges, old missions and the city library).

Building Steel Bridges

When it came time to replace the Newport Avenue Bridge over I-215, the project's last structure, Caltrans partnered with Ames Construction Inc., Stinger Bridge & Iron, San Bernardino Associated Governments, Riverside County Transportation Commission, The Federal Highway Administration, Burlington Northern Santa Fe Railroad and the California Highway Patrol.

The bridge that was demolished was an old, side-metal railing, open-top structure. Its weathered-steel replacement, designed by Caltrans, is a truss with a closed top and cross members joined together – and will require no painting. Typically, painted bridges require maintenance every five years.

Ames Construction alongside Stinger Bridge & Iron assembled and transported four steel railroad bridge trusses into place with minimal traffic impact to motorists. The 1.1 million-pound span trusses were assembled off-site – but only three-fourths of a mile away to limit the transport distance – in April 2014 in an operation nicknamed "Spring Sting." The steel trusses, held together by 98,000 bolts, were then lifted and checked for logistic capabilities.

Finally, the 200-foot-long, 30-foot-high and 23-foot-wide steel trusses were transported into place using self-propelled modular transports – the same innovative technology used to transport the 150,000-pound space shuttle Endeavour to the California Science Center in Los Angeles. It was the first time a state transportation agency had attempted a move like this with such a large structure, said Senior Transportation Engineer Manny Yogarajah. The replacement had to be done in a 20-hour window because it required shutting down one track at a time to keep rail traffic moving.

The final bridge work, known as "Summer Sting," was carried out in September 2014, putting the last two fabricated steel bridge trusses into place.

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More Carpool Lanes Needed

Approximately 160,000 vehicles travel this section of I-215 daily, reaching as many as 10,000 per hour during peak commute times. By 2040, that number is expected to jump to an estimated 335,000 vehicles per day, and 21,000 per hour during peak commute hours. Forecasts also show a demand for carpool lane use by 97,000 vehicles per day by 2040. The new carpool lanes will encourage ridesharing through carpools and vanpools, and improve the efficiency, safety and operations of traffic moving between San Bernardino and Riverside counties.

The San Bernardino Associated Governments (SANBAG) has long-term plans to add a new northbound and southbound general purpose lane in this area by 2040. Two separate but related projects also are in the planning stages along this section of I-215 – reconstruction of the Mt. Vernon/ Washington Street interchange in Colton and the Barton Road interchange in Grand Terrace.

Caltrans was the lead agency during construction, which wrapped up in May. SANBAG and the Riverside County Transportation Commission shared responsibilities and costs for the Project Approval/Environmental Document phase of the project. Project funding was provided in part by Measure I (the half-cent sales tax for transportation improvements in San Bernardino County), Measure A (the half-cent sales tax for transportation improvements in Riverside County), as well as State and Federal funding. The project received nearly $80 million of its funding from Proposition 1B

Commuting and Traffic Data

Source: Caltrans and Southern California Association of Governments.

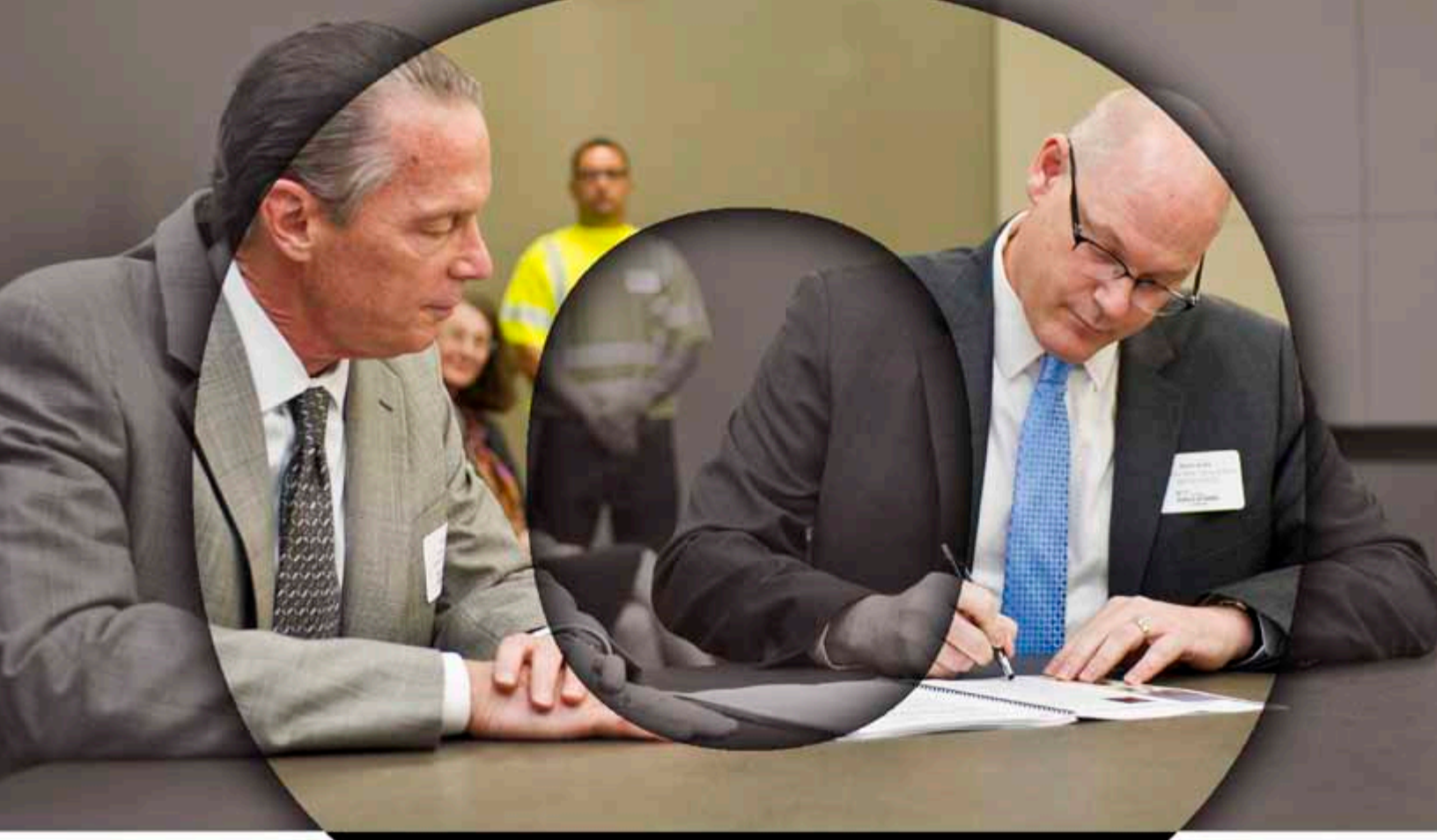
- 80 percent of San Bernardino County commuters and 79 percent of Riverside County commuters drive to work alone each day.
- San Bernardino County commuters spend an average of 43 minutes each way, traveling an average of 23.3 miles in each direction. Riverside County commuters spend slightly more time on the road – an average of 46 minutes each way, traveling 25.1 miles each way.
- Approximately 160,000 vehicles per day travel this section of I-215. An average of 10,000 vehicles per hour travel during peak commute times.
- Caltrans estimates the project will eliminate more than 14,571 hours of delays and improve air quality.
- By 2040, an estimated 335,000 vehicles per day are expected in this area, and average peak hour traffic counts are expected to grow to 21,000 per hour.
- Up to 18,000 trucks move freight through this area each day, with 34,000 projected daily by 2040.
- Forecasts show a demand for carpool lane use to increase by 97,000 vehicles per day by 2040.
- Traffic delays are common for northbound and southbound travelers during peak commute times, particularly for southbound motorists in the morning hours and northbound motorists in the late afternoon and evening hours. Delays are much greater on Friday evenings and holiday weekends.

Awards

Caltrans Gold Partnering Award for Construction 2014 and 2015

Source: District 8
Contributors: Manny Yogarajah and Tyeisha Prunty

A retaining wall on I-215 honors the San Bernardino area's longtime railroad history.



Toward Zero Deaths

Framework for Five-Year Action Plan

"Toward Zero Deaths" is the ultimate goal for state transportation officials, and it is spelled out in the new Strategic Highway Safety Plan (SHSP) adopted in September by several state agencies and departments, including Caltrans. The 70-page plan is a statewide, coordinated framework for reducing fatalities and severe injuries on all public roads. Implementation of the plan begins in the spring of 2016.

The plan is data driven, performance measured and focused on the 4Es of safety — engineering, enforcement, education and emergency medical services. It complements the Highway Safety Improvement Program, the Highway Safety Plan, the Commercial Vehicle Safety Plan and the 2040 California Transportation Plan, which is scheduled to be released this month.

Photo above: California State Transportation Agency Secretary Brian Kelly, right, signs off on the new Strategic Highway Safety Plan.

California developed its first SHSP in 2005, amended it in 2010 and – following federal mandates to update the plan every five years – updated it again this year. More than 50 agencies and organizations, including tribal governments and regional transportation organizations, contributed to the current version.

Key Goals in the 2015 SHSP

- Increase the focus on reducing the number of severe injuries and the rate at which severe injuries occur in each 100 million miles traveled.
- Measure the cost effectiveness of improvements.
- Develop strategies and actions to address the more difficult problems (repeat DUI offenders, breath-test refusals, drug-impaired driving.
- Identify the locations of fatalities and severe injuries.
- Identify areas with high-risk factors for potential crashes
- Include tribal roads.
- Involve even more safety stakeholders from across the state.
- Involve the public to create a culture of traffic safety.
- Coordinate with other safety statewide plans, including California Transportation Plan, California Freight Plan and Highway Safety Plan.
- Improve the speed of data gathering.

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Caltrans' SHSP Accomplishments

The Strategic Highway Safety Plan has achieved much since the 2010 plan was released. Below are some accomplishments as they relate to Caltrans:

Roadway Departure

- Implemented the Caltrans Local Roadway Safety Manual and Highway Safety Improvement Program (HSIP) Project Evaluation Tool, which resulted in data-driven project evaluations, and developed the Traffic Injury Mapping System, which made local crash data available to all jurisdictions.
- Conducted training and outreach on low-cost safety improvements including the use of high-friction surface treatments and road safety audits. Local jurisdictions are now incorporating these improvements as part of their HSIP funded activities.
- Local agencies shifted to lower cost/higher benefit improvements which resulted in over 20 miles of HSIP funded projects per $1 million invested.

Intersections, Interchanges, and Other Roadway Access

- Developed a policy that requires the consideration of roundabouts and safety performance analysis findings when adding or expanding access points on the State Highway System. The same also applies to local agencies.
- Produced an engineering policy to identify and address safety performance needs and impacts in the project scope for investments in freeway corridors where severe crashes are concentrated.
- Produced an engineering policy to identify and address safety performance needs and impacts in the project scope for investments in freeway corridors where severe crashes are concentrated.
- Created the Freeway Safety Performance Demonstration.
- Developed a program which evaluates the use of lighting as a countermeasure along freeway corridors experiencing the highest concentration of fatal collisions on the state highway system.

Work Zones

- Developed first-in-nation traffic control policies to accommodate bicyclists in work zones.
- Evaluated and promoted work zone best practices, including use of full roadway closures, larger letters on temporary signs, and temporary transverse rumble strips for flagging operations.
- Increased work zone awareness to influence driver behavior through changes to DMV handbook and tests, project-specific websites, real-time traffic updates, and work zone safety campaigns.
- Developed and conducted a joint work zone training between Caltrans, contractors, and the California Highway Patrol.

Roundabouts Keep Traffic Moving, Safe

In many parts of the world, roundabouts are a routine sight. In many parts of California, however, they are still a novelty – a situation likely to change in the coming years.

Roundabouts have shown potential to address some very sobering statistics and some very specific traffic challenges.

In California in 2012, nearly half (45.7 percent) of fatalities and severe injuries were related to crossing and left turn movements at intersections and the merging, weaving and lane changing movements generated by freeway, expressway and carpool lane entrances and exits. The primary collision factors, according to the recently updated Strategic Highway Safety Plan (SHSP), included: improper passing, unsafe lane changing, improper turning or other improper driving. Between 2003 and 2012, 15,917 people died and 56,134 were severely injured at intersections and between closely space freeway interchanges and other access points.

Enter the roundabout, in which vehicles travel around a central island in a counterclockwise direction. Studies show that roundabouts can have many advantages over traffic signals when constructed in the right location.

For example, roundabouts provide traffic calming, resulting in reduced speeds. They require less maintenance, have lower yearly operational costs and have a longer service life. They reduce greenhouse gas emissions by reducing vehicle idling time. The median islands also provide refuge for pedestrians, allowing them to cross one direction of traffic at a time. And they provide additional opportunities for landscaping in the community.

Tips For Motorists Navigating Roundabouts

For the uninitiated, roundabouts can seem a bit confusing at first. They're actually quite simple: vehicles entering or exiting the roundabout must yield to vehicles, bicyclists and pedestrians. Here are some other rules, taken from the Department of Motor Vehicles' California Driver Handbook. When you approach a roundabout:

- Slow down as you approach the intersection.
- Yield to pedestrians and bicyclists crossing the roadway.
- Watch for signs and pavement markings that guide you or prohibit certain movements.
- Enter the roundabout when there is a big enough gap in traffic.
- Drive in a counterclockwise direction. Do not stop or pass other vehicles.
- Use your turn signals when you change lanes or exit the roundabout.
- If you miss your exit, continue around until you return to your exit.

For roundabouts with multiple lanes, choose your entry or exit lane based on your destination. For example, to

- Turn right at the intersection, choose the right-hand lane and exit in the right-hand lane.
- Go straight through the intersection, choose either lane, and exit in the lane you entered.
- Turn left, choose the left lane and exit.

Source: Division of Traffic Operations
Contributors: Andrew Knapp, Thomas Schriber

6 second Implosion Was Years in the Making

It took less than six seconds for hundreds of synchronized blasts to flatten the old Bay Bridge's largest concrete pier. But it took years of preparation and collaboration with permitting agencies to ensure the implosion went smoothly, safely and with minimal impact to wildlife and the sensitive environment of San Francisco Bay.

Early in the morning on Nov. 14, nearly *600 controlled charges* weakened the 50 feet of Pier E3 which stood from the bay floor to the waterline, allowing gravity to collapse the tower into its hollow casing below the mudline.

Eight different public agencies permitted the implosion, including the California Department of Fish and Wildlife, the National Marine Fisheries, the National Oceanographic and Atmospheric Administration, the Bay Area Conservation and Development Commission and the U.S. Army Corps of Engineers.

Their input and assistance were crucial. Data collected over the next several months will be compiled into a report to assist in determining if Caltrans will seek additional approvals to implode some or all of the remaining 21 piers from the old east span.

While there is much still to be analyzed, many goals were met by Caltrans, its contractors and participating and permitting agencies:

- The implosion occurred during the target month of November, the month with the least environmental impact, including the fewest marine animals present.
- The blast attenuation system, or "bubble curtain," which is estimated to cut down the pressure waves from the charges by about 80 percent, was successfully deployed.
- Dozens of environmental and biological experts carefully monitored areas surrounding the blast zone, verifying large animals were not nearby during the implosion.
- The brief traffic stop on the Bay Bridge and BART trains in the Transbay Tube protected the public from distraction.

An implosion using explosive charges was determined to be easier on the San Francisco Bay wildlife than any other form of demolition. Mechanical removal would have required the pounding of almost 400 piles to build a watertight wall around the pier that could be pumped dry for workers. Disruptive operations would have lasted nearly four years.

November is the best time for such operations, because it is when the fewest animals are present. There are typically no salmon runs, bird nesting or herrings at that time. Multiple wildlife experts were positioned around the site, monitoring before, during and after the implosion. Detection of a marine mammal would have halted the operation.

In the weeks following the implosion, updates were expected on the following:

- Three-dimensional imaging of what it looks like on the bay floor. This data is pivotal to assessing the effectiveness of the implosion, and how much, if any, debris needs to be picked up from outside the remainder of Pier E3 and placed inside the hollow structure.
- The effect of the implosion forces on fish and wildlife.
- The composition of the dust cloud created by the implosion.
- If the traffic and BART stops will be necessary for future potential implosions.

Based on these reports, Caltrans will determine whether to seek environmental permits needed to use this demolition method on additional piers.

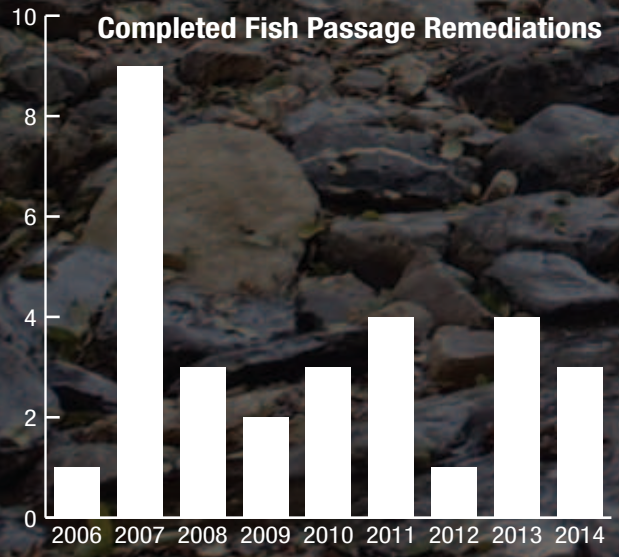
Source: District 4
Contributors: Leah Robinson-Leach

For the FISH

Converting Barriers into Passages

There are 520 known fish passage barriers on the state highway system and ongoing assessments will likely identify additional locations. Resolving them all is a daunting task, but Caltrans is committed to making more progress in coming years than it has in the past.

Between January 2006 and December 2014, for example, Caltrans removed 30 barriers. Caltrans currently has 24 active fish passage remediation projects programmed, and the 2015 Fish Passage Annual Report sent to the Legislature has identified 48 more as priorities for future programming.



This graph shows fish passage barriers removed each year since 2006. In 2007, nine projects were completed because one larger project included five remediation locations. For the rest of the years, the number of barriers removed were as low as one and as high as four.

Restoring fish access to upstream habitat can be a large undertaking. Consider the Fort Goff Creek Fish Passage Restoration Project under State Route 96 near Seiad Valley in Siskiyou County, a community dependent on the fishing industry for its main source of income.

Caltrans replaced the fish barrier – a 15-foot diameter steel culvert – with a 60-foot span bridge during this 2014 project. Caltrans teams and wildlife experts waded into the creek and relocated approximately 800 fish to begin this $2.5 million project. It was the culmination of a 10-year effort to secure funding and partnerships between many state and federal agencies, as well as with the Karuk tribe of Siskiyou County.

A year later, adult Chinook salmon have been observed upstream of the highway. The project set very high standards in terms of the relationships built and the careful steps taken to preserve the natural beauty and aesthetics of the area. The Fort Goff Creek project will serve as a model for future Caltrans projects throughout the State Route 96 corridor.

Prioritization of Barrier Locations

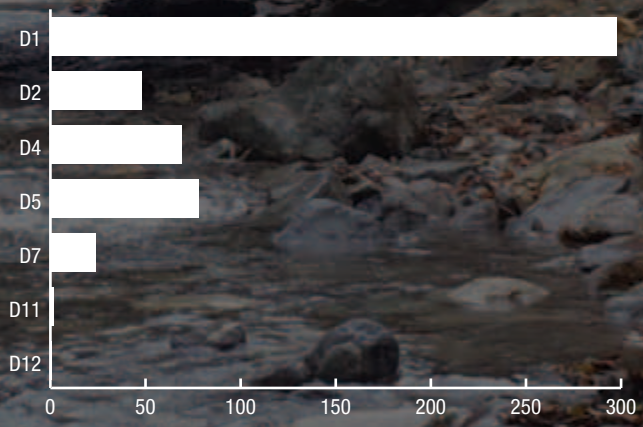
Caltrans and California Department of Fish and Wildlife (CDFW) work together to determine the combined priority list of fish passage barriers on the state highway system. Barrier locations are assessed

The Fort Goff Creek fish passage on SR-96 in Siskiyou County was completed in 2014.

Source: Division of Environmental and District 2
Contributors: Amy Bailey and Melinda Molnar

Number Of Current Barriers

(By District)



While not all of Caltrans districts have known fish passage barriers, Caltrans District 1 located in the northwest coast, has nearly 300 known barriers — more than all the rest of the districts combined.

and prioritized based on the relative value that their removal would provide to habitat of anadromous species – sea-going fish that breed in fresh water – such as salmon. The habitat value of each location is defined by the presence (or historic presence) and diversity of anadromous species — suitable upstream habitat quality and quantity and the localized knowledge of expert fisheries and hydraulic professionals.

The drought has posed additional challenges to anadromous fish migration and the recovery of listed salmonid populations. State and federal partner agencies are working to identify stretches of watersheds that are likely to provide cool water during the late summer and early fall, in order to sustain salmon populations such as Chinook salmon, which have been particularly hard hit by drought.

Moving Forward

Caltrans is working to incorporate the updated list of 48 high priority fish passage locations into existing or future funded projects. Meanwhile, it is working with the National Oceanic and Atmospheric Administration (NOAA) and CDFW to develop standard design solutions for the varied state highway fish barrier types (i.e. culvert replacement, new bridges, weirs), in order to meet species migration needs and to achieve design and approval efficiencies.

In July 2015, Caltrans and NOAA executed an inter-agency agreement, which includes a Caltrans-funded fish passage engineer position. This engineer will work under the direction of NOAA, with a primary focus on Caltrans fish passage locations, to include helping to scope solutions and fish passage design approvals.

Caltrans has a similar agreement with CDFW, which also includes a Caltrans-funded fish passage engineer position, also working under the direction of the partner agency.

After 10 years of delivering fish passage remediation projects, Caltrans is committed to becoming more efficient and expert at planning and implementation. Efforts have been made to increase staff expertise, implement standard designs, and continue partnering with regulatory agencies for permitting and other efficiencies. Caltrans has also demonstrated commitment to remediating barriers to fish on the state highway system by becoming a signatory to the California Fish Passage Forum memorandum of understanding.

A Smoother Landing

Caltrans Monitors State's Airport Pavement

Caltrans Aviation by the Numbers

Public-use airports	244
Hospital heliports	163
State aviation safety officers	6
State-owned aircraft	2
State airport grants awarded for state fiscal year 2014–15	$4.0 million
Federal aviation grants awarded to California airports for federal fiscal year 2014	$285.5 million
Total California Aeronautics Account revenue for fiscal year 2014-15	$5.5 million

Source: Division of Aeronautics Aviation in California Fact Sheet (April 2014).

Aviation Safety Inspections

Type	2010–11	2011–12	2012–13	2013-14	2014-15
Airport (AP)	164	170	203	182	210
Heliport (HP)	90	90	114	127	126
Total AP and HP	254	260	317	309	336
FAA form 5010	147	152	172	155	182

Source: Division of Aeronautics

Caltrans, in partnership with the Federal Aviation Administration and airport authorities, is responsible for ensuring that all 244 permitted public-use airports are maintained in satisfactory to good condition in accordance with state and federal safety and design standards.

While not as visible to most citizens as roadways, public-use airports are a critical component of the state's multimodal transportation system. Caltrans fulfills its responsibility in this sector by conducting periodic safety inspections of the runways, taxiways, aprons and tie-down areas – essentially all airfield pavement – and by providing grants for safety and operational airport improvement projects at eligible general aviation airports.

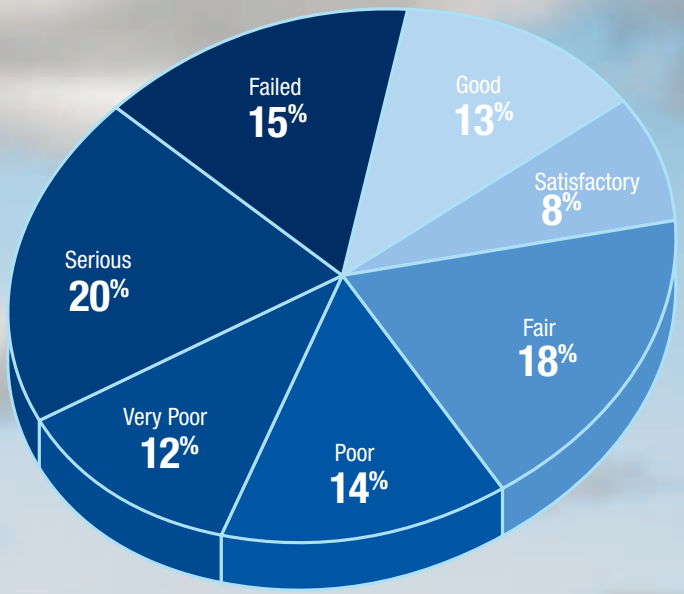
Airport pavement surveys are conducted every five years, with each survey generally reporting on about half of the state's public-use airports (not the commercial airports that most of us use for business or pleasure). By combining the 2006 and 2012 surveys, Caltrans estimates that by 2016 a little more than half of California's public-use airports will have pavement that falls into the "good" through "poor" categories, requiring relatively minor repairs, while a little less than half – those rated "very poor," "serious" and "failed" – will require major repairs.

Pavements in serious to failed conditions may constrain airport operations and could lead to possible suspended permits without immediate repairs.

Caltrans uses the Airport Pavement Management System (APMS) to survey and measure current pavement conditions and to generate projections on their future conditions. APMS reports help prioritize airport pavement projects in order to best utilize the state's limited funds. Like highway pavements, airport pavements also deteriorate over time and timely maintenance is much more economical than complete reconstruction or replacement.

California Airport Runway Pavement Condition Index Projection for 2016

by percentage



According to the Pavement Condition Index, a projection of 2016 conditions based on the 2006 and 2012 surveys – the last surveys conducted – 90 airports are in need of major repairs.

The Value of Public-Use Airports

There are two broad categories of public-use airports: commercial service airports, which provide scheduled flights and goods movement, and general aviation airports, which support business flights, agriculture, recreation, flight training and light aircraft manufacturing and maintenance.

General aviation airports are also used by first responders for fire suppression, law enforcement and medical airlift. As demonstrated by recent floods in Southern California, when roadways and bridges are impassable due to natural disasters, general aviation airports can become a lifeline for affected communities. General aviation and related manufacturing contribute $38.5 billion in economic activity in California annually.

Inspecting and providing airport improvement grants at California's general aviation airports support Caltrans' mission to provide a safe, sustainable, integrated and efficient transportation system, and it contributes to the public's health and safety, to enhance California's economy and livability.

Source: Division of Aeronautics
Contributor: Patrick Kyo

Airport Engineer Parvin Bijani inspects runway pavement at Sacramento Executive Airport.

Travel Time Reliability

The Intricate Math Of A Predictable Commute

For most people, the only thing worse than a congested commute is an unpredictable one.

Someone who has a consistent 45-minute commute has what you would call a reliable commute, as long as the daily travel time doesn't vary beyond what they consider reasonable. But someone who never knows from day to day whether it will take 30 minutes or an hour has an unreliable commute. That uncertainty prompts people to pad their commute time. Traffic planners call that padding "Buffer Time," the time one must add to reach their destination as planned.

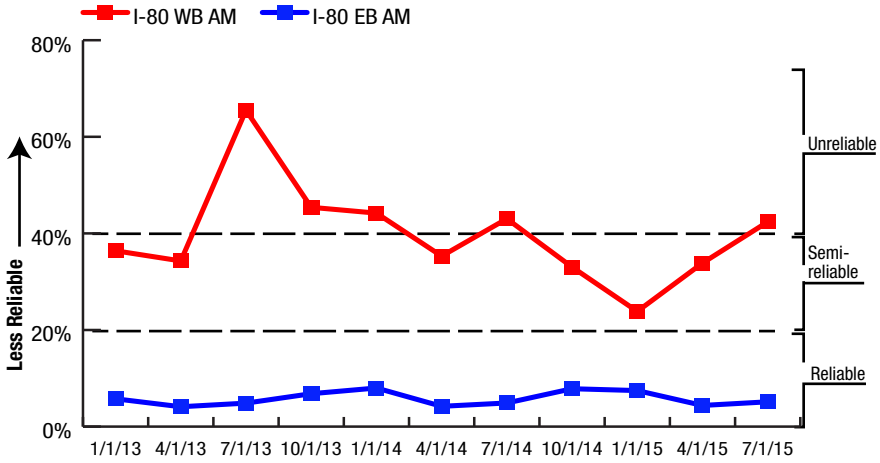
Measuring and calculating that "Buffer Time" creates what is called a "Buffer Time Index." Caltrans uses this index to identify which corridors require assistance in smoothing out delays and helps us measure the effectiveness of our solutions.

The Department divides the Buffer Time Index into three levels of travel time reliability:

- Reliable travel means drivers need to add less than 20 percent travel time to the average trip to get to their destination on time 95 percent of the time. For example, on a 45-minute commute, drivers would need to pad their commute by nine minutes or less.
- Moderately unreliable travel requires drivers to add 20 to 40 percent of travel time to get there on time 95 percent of the time (padding their commute by as much as 18 minutes in a 45-minute commute).
- Unreliable travel means drivers must add more than 40 percent of travel time to get there on time 95 percent of the time (padding their commute by more than 18 minutes in a 45-minute commute).

Travel Time Reliability on Contra Costa/Alameda I–80

Morning Commute 5 a.m. – 10 a.m.

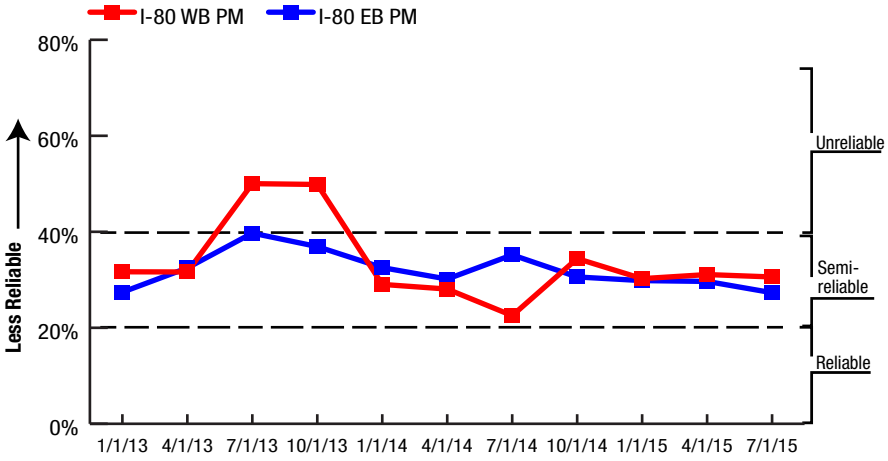


This chart shows morning travel time reliability for both directions on the Contra Costa/Alameda Interstate 80 corridor. Westbound morning commutes (dark red line) ranged from unreliable to semi-reliable. Heading the opposite direction in the morning (blue line) was consistently reliable in the time period displayed.

Note: Collisions, construction projects, weather, and events affect travel time reliability. In 2013, Caltrans had 211 projects in construction in the Bay Area, with the new Bay Bridge opening in September 2013.

Travel Time Reliability on Contra Costa/Alameda I–80

Evening Commute 3 p.m. – 8 p.m.



This chart shows evening travel time reliability for both directions on the Contra Costa/Alameda Interstate 80 corridor.

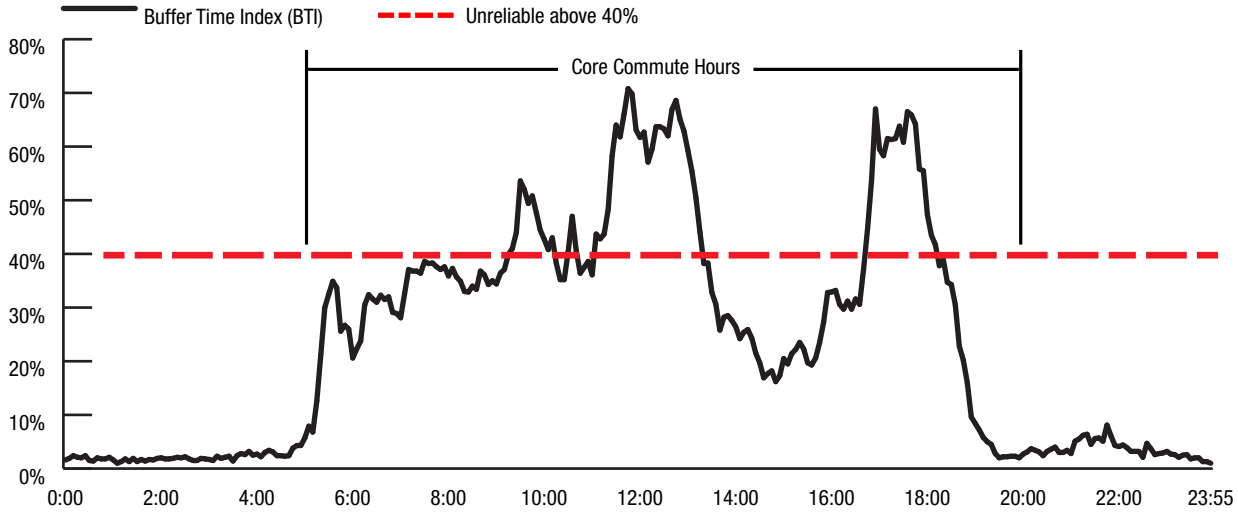
Caltrans' 2015-2020 Strategic Management Plan has a goal to increase corridor reliability. The department aims to improve reliability by one level on four corridor commute directions, one each for State Route 57, Interstate 110, Interstate 80 and Interstate 210. Caltrans has been measuring reliability in urban corridors consistently since 2013, and the graphs on these pages show the reliability of the morning and evening commutes for one particularly busy corridor: Interstate 80 in the East Bay Area (District 4).

Buffer Time Index

Caltrans uses its own performance measurement software to provide statewide information about vehicle travel time, traffic counts and other data to pinpoint where travel time reliability needs improvement. The data that is sent to the Caltrans Performance Measurement System comes from sensors under the pavement or near the roadway in most urban areas. Information is also sent to staff at Caltrans' traffic management centers (TMCs) throughout the state to alert them of problems. The TMC staff can also see what is going on using closed-circuit cameras. This helps them quickly deal with problems that block traffic. The less time it takes to clear the roadway, the sooner traffic flow returns to normal.

Buffer Time Index
Contra Costa/Almeda I–80 Westbound

April 1, 2015–June 30, 2015

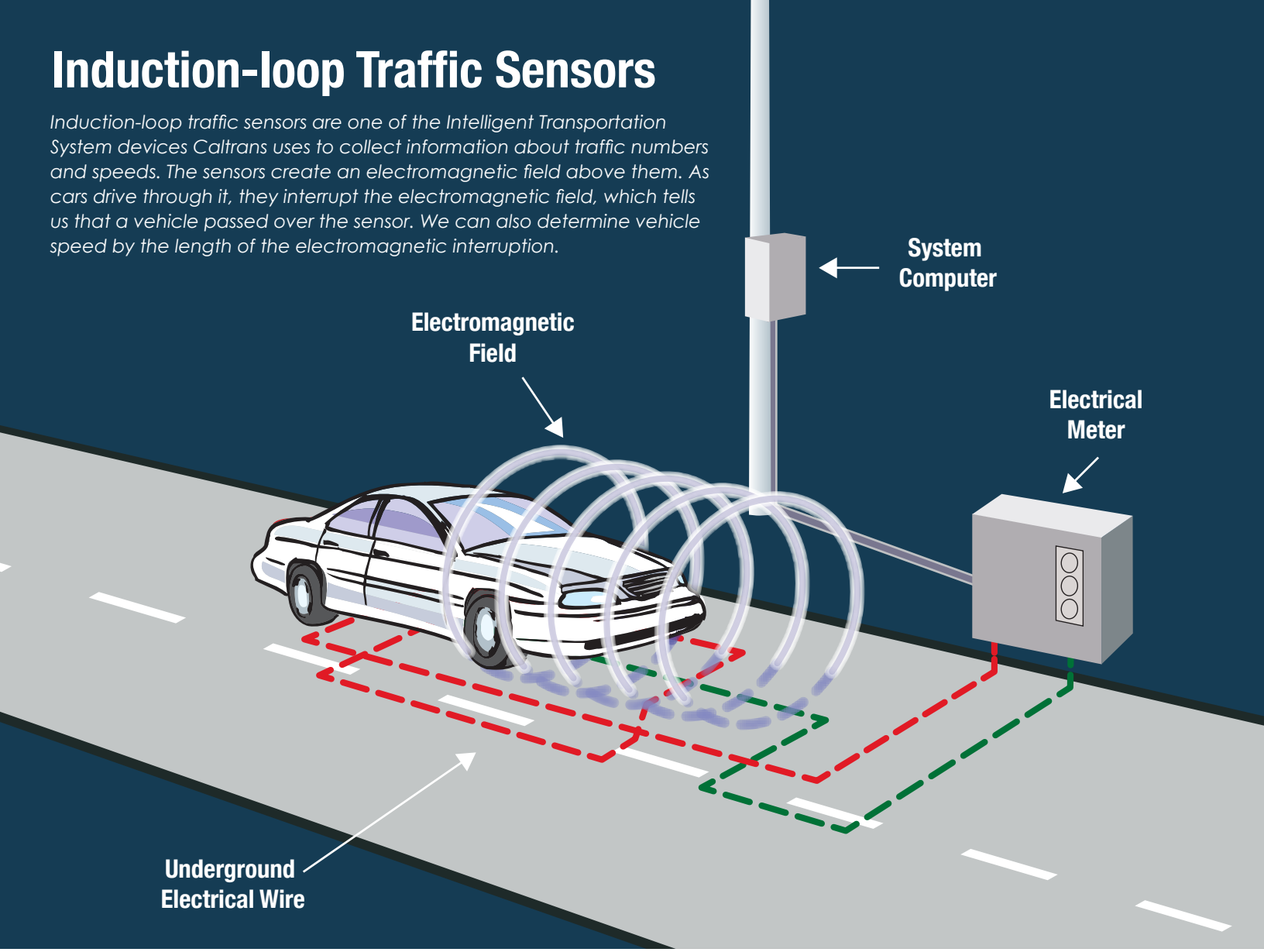


The BTI (Buffer Time Index) represents the amount of time motorists must add to their average commute to get to their destination when planned. This graph shows the BTI on I-80 in Alameda and Contra Costa counties at different times of the day. When using I-80 in these counties, motorists need more time during the unreliable morning and evening commute and in some congested corridors, during the lunchtime hour.

(continued)

Induction-loop Traffic Sensors

Induction-loop traffic sensors are one of the Intelligent Transportation System devices Caltrans uses to collect information about traffic numbers and speeds. The sensors create an electromagnetic field above them. As cars drive through it, they interrupt the electromagnetic field, which tells us that a vehicle passed over the sensor. We can also determine vehicle speed by the length of the electromagnetic interruption.



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Traffic Sensors

Induction-loop traffic sensors are one of the Intelligent Transportation System devices Caltrans uses to collect information about traffic numbers and speeds. The sensors create an electromagnetic field above them. As cars drive through it, they interrupt the electromagnetic field, which tells staff that a vehicle passed over the sensor. Vehicle speed can also be determined by the time it takes for a vehicle to travel across two sensors.

However, it takes time, money and coordination to improve travel time reliability throughout the state. Caltrans is constantly repairing its intelligent transportation system elements like highway detectors, traffic signals and electronic message signs which fail or become obsolete over time. This process often requires coordination with regional transportation agencies, cities, counties, Native American tribes and bordering states.

In 2007, Caltrans partnered with local agencies to build a network of integrated electronic signs, ramp meters and other state-of-the-art elements on I-80 between the Carquinez Bridge and the Bay Bridge. Starting in the spring of 2016, this I-80 SMART Corridor will be able to relay real-time traffic information to motorists so they can make informed travel decisions. This will improve motorists' safety and travel time reliability. (See I-80 SMART Corridor article in the 3rd Quarter 2015 Mile Marker). Improvements in the State Route 57, Interstate 110, and Interstate 210 corridors are in the design phase (or being developed collaboratively with our transportation partners).

Caltrans is also collaborating with dozens of regional and local agencies to better manage highly congested and unreliable corridors throughout the state, including the "Connected Corridors" pilot project on Interstate 210 in the San Gabriel Valley, Los Angeles County (District 7). These Connected Corridors will lay the groundwork for similar efforts statewide.

Source: Division of Traffic Operations
Contributor: Rich Stone

Caltrans Adopts 20-Year Stormwater Plan

Source: Division of Environmental
Contributors: Scott McGowen and Keith Jones

Until last year, Caltrans' Stormwater Management Program had 84 specific plans and 84 potential ways of enacting them for polluted watersheds, with efforts specific to those individual basins or watersheds. It also had a wide range of timelines for those plans, from 10 years to more than 30.

Taken together, those methods were inconsistent and inefficient. So, in 2014 Caltrans standardized its approach and adopted a 20-year plan to bring stormwater discharges from 33,000 acres of highway rights-of-way up to federal clean-water standards and those of the State Water Resources Control Board.

These efforts are mandated through a National Pollutant Discharge Elimination System (NPDES) permit — also called Waste Discharge Requirements under state law — that regulate discharges of stormwater into the waters of the U.S. and waters of the state.

Caltrans is responsible for much more than the land alongside the 4,100 centerline miles in the state highway system. Its stewardship spans watersheds that cover 28 percent of the state. In fiscal year 2014-2015, more than 100 sites were monitored for stormwater quality. The list continues to grow, with more than two-thirds of the state watersheds draining to water bodies listed as "impaired."

Each acre from which stormwater runoff is retained, treated or otherwise controlled prior to discharge to California's waters is accounted for and credited towards permit compliance. Since this method was initiated in July 2014, Caltrans has qualified for approximately 3,600 compliance unit credits corresponding to an equivalent numbers of acres treated. Details of compliance credits in the various watersheds are summarized in the annual Caltrans Total Maximum Daily Load (TMDL) Status Review Report.

Caltrans continues its research into pollution control technologies that are compatible with highway infrastructure and that efficiently and effectively remove roadway pollutants.

Caltrans can earn its credits, or compliance units by:

- Treating an acre of right-of-way using best management practices approved in the Stormwater Management Plan.
- Coordinating implementation efforts with municipalities in the impaired watershed, and investing in resources to fund projects that treat stormwater runoff that are focused on the TMDL pollutant. Caltrans will receive one compliance unit for each $88,000 spent in cooperative implementation with other municipal storm sewer programs.
- Funding a grant program (to be administered by the State Water Board) that will provide resources to municipal programs pursuing compliance projects in TMDL watersheds.

The program anticipates that stormwater quality monitoring will continue to increase, as new sites are identified, additional treatment best management practices are installed and retrofits are completed.

Caltrans Strengthens Water Management During Drought

The direction from the governor's office in April was clear: For the first time in state history, the State Water Resources Control Board would implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent. Caltrans Director Malcolm Dougherty then challenged his department to cut water usage by 50 percent over 2013 totals.

Caltrans cut its use by more than half, and invested in technology, infrastructure and water management practices that will continue to reap savings well into the future, while protecting the health of roadside vegetation.

Through the first three quarters of this year – January through September – Caltrans consumed 62 percent less water than in the first three quarters of 2013. That's a savings of roughly three and one half-billion gallons, or enough water for 27,000 households for a year, based on the statewide average of 360 gallons per day or 131,000 gallons per year.

Caltrans has decades of experience in water conservation. In 1990, Caltrans used 13.4 billion gallons of water to irrigate 17,000 landscaped acres. In stark contrast, Caltrans in 2014 used less than 5 billion gallons of water to irrigate almost twice as much acreage. In 2015, Caltrans is on track to use 3 billion gallons of water, or 60 percent less than in 2013.

Year	Water Use (billion gallons)
2010	6.96
2011	6.40
2012	7.52
2013	7.41
2014	4.99
2015	2.87 (projected)

In the first three quarters of 2015, Caltrans reduced its water consumption by 61 percent compared to the same period in 2013. That represents a savings of $6.1 million.

Photo: Lake Mendocino

An Action Plan

In October, Caltrans issued its 2015 Drought Action Plan that mandates all project delivery activities must reflect the need to conserve water. This means that Caltrans "must evaluate all planting work that requires irrigation with potable water, in any phase of project delivery, regardless of funding source or purpose, to defer proposed planting work until both drought conditions improve and the use of potable water is not restricted for landscape purposes."

In addition, construction activities must also comply with local and state water reduction mandates and practices and all affected stakeholders must collaborate to resolve potential issues that could arise from delaying planting. At the same time, deferred commitments are to be tracked and monitored so they can be fulfilled once drought conditions are lifted.

And each of Caltrans' 12 districts have developed their own drought action plans, tailored to their region's water management needs.

Even if the El Niño weather phenomenon delivers significant rainfall this year, it is unlikely to end California's water woes. California's reservoirs will need three consecutive years with above-average rainfall just to bring them back to "normal."

As a result, Caltrans continues to invest in such things as "smart" irrigation controllers that automatically adjust watering to weather condition and soil moisture and will alert water managers if there is a break in the system. These sprinklers put water down just as the plants need it and reduce waste and inefficiencies. Staff is also being trained to use those controllers, which will someday assist in managing all Caltrans sprinklers. The department has allocated $62 million to modernize irrigation systems throughout the state, with another $152 million in the works. In addition, 544 staff in the Design, Maintenance and Construction divisions have been trained on irrigation management and water conservation.

Since Jan. 1, 2014, Caltrans has approved almost $214 million in spending to meet the director's orders in water reduction, with more than $130 million alone approved between June 1 and Oct. 2.

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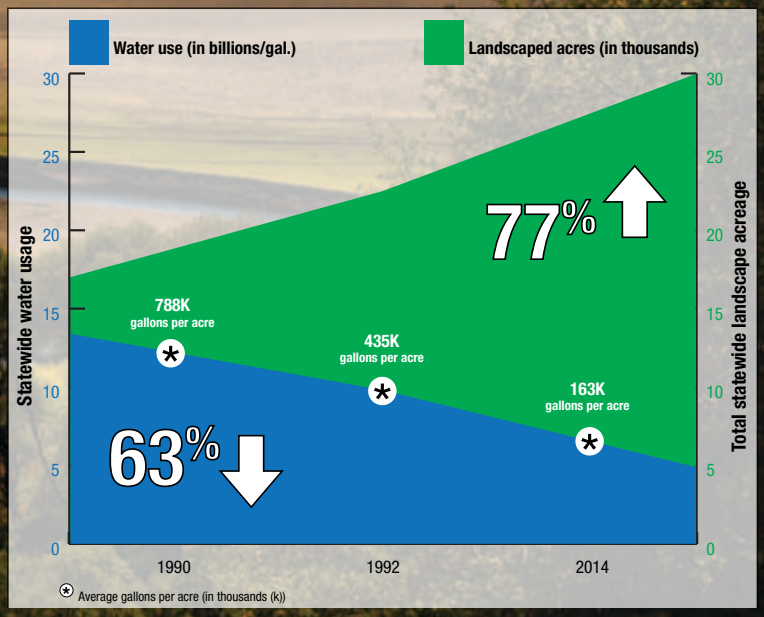

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A sizable portion of that money is being invested in the installation of pipelines to carry nonpotable or "recycled" water to Caltrans roadside planting sites. Every gallon of nonpotable water used is a gallon of drinking water saved, helping the department save not just in drought years, but far into the foreseeable future. Nonpotable usage is approaching 20 percent and Caltrans is working with regional water districts to get that number much higher.

The pipelines for the nonpotable water are seen as a necessary expenditure. Over the years, Caltrans has spent $1.4 billion in its landscaping and it would cost more than that to replace it all. This landscaping serves a purpose, keeping roadsides from eroding, helping to protect water quality, reducing the fire risk and keeping the roads free of dirt and debris.

Notably, Caltrans also improved its accounting systems to accurately track water consumption and reduce the potential for overcharges by water agencies. In addition, the department received more than $800,000 in rebates from water districts for achieving more efficient irrigation systems.

Unavoidable Losses

Despite these efforts, the drought still wreaked its damage, especially in the bone-dry forests, where dead or dying trees fueled a rash of wildfires throughout the state. In August, all 12 Caltrans districts identified the number of dead trees in the right-of-way. Of the half-million trees in Caltrans' right-of-way, an estimated 16,300 had died.

In October, Gov. Jerry Brown declared a state of emergency regarding the dead trees, not just in Caltrans' domain, but throughout the state. The U.S. Forest Service estimated that more than 22 million trees are dead in California and that "tens of millions more are likely to die by the end of this year," according to the proclamation.

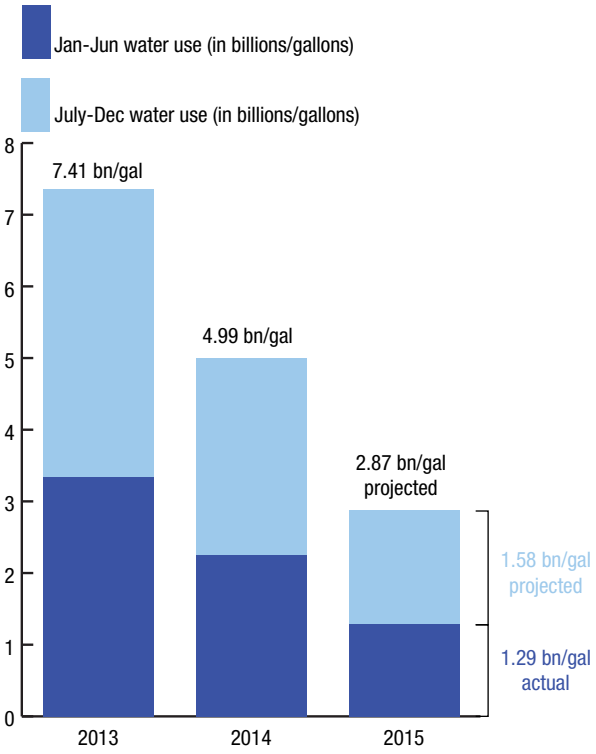
As a result, Caltrans was ordered to formally request immediate assistance through the Federal Highway Administration's Emergency Relief Program to obtain federal assistance for removal of dead and dying trees that are adjacent to the highways. Caltrans is also tasked with identifying road corridors where woodchips produced from dead trees can be used as mulch (due to the overabundance of woodchips, the emergency declaration supports directing woodchips to such sites as cogeneration plants, where the chips can be converted into energy).

Source: Division of Environmental
Contributor: Keith Robinson

Farmers uprooted trees near I-5 and Hwy 99 in Southern California

Caltrans Water Usage

(by half year increments)

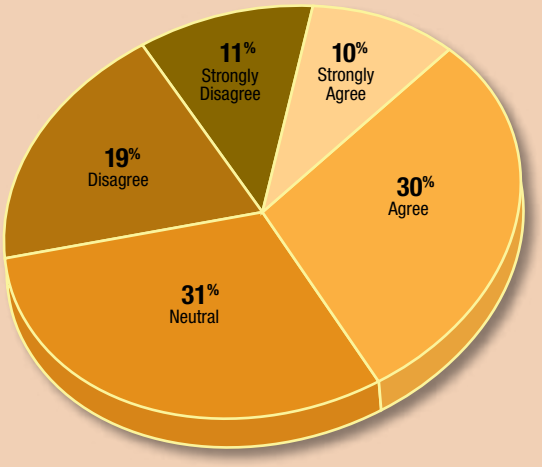


Measurable Change

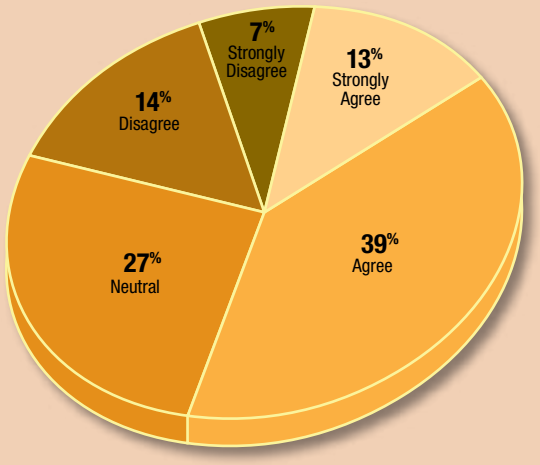
Through the Director's Orders, Caltrans has (or will soon accomplish):

- Put 25,196 of 26,425 acres of irrigated landscaping under Smart Controller management, almost doubling the acreage prior to the orders. The remaining 1,229 acres of landscaping were not appropriate for Smart controllers (due to solar powered controllers already in place, temporary irrigation systems, etc.)
- Converted irrigation systems to recycled or nonpotable water from potable water resulting in a reduction of 240 million gallons annually of potable water used to irrigate landscape.
- Installed 2,838 Smart controllers (78 percent) of all irrigation controllers.
- Created Water Manager positions in each district. Districts 4 (Bay Area) and 7 (Los Angeles) have two water managers each due to the high number of landscaped acres. Water managers will actively manage water application to ensure conservation practices continue.
- Replaced 39,000 sprinklers with more efficient sprinklers.
- Replaced 368,000 linear feet of damaged irrigation pipe.
- Replaced 1,361 building fixtures (faucets, toilets, etc.) with more efficient models
- Installed theft deterrence measures at 969 locations to reduce the possibility of vandalism which could damage irrigation systems and cause excessive water use.

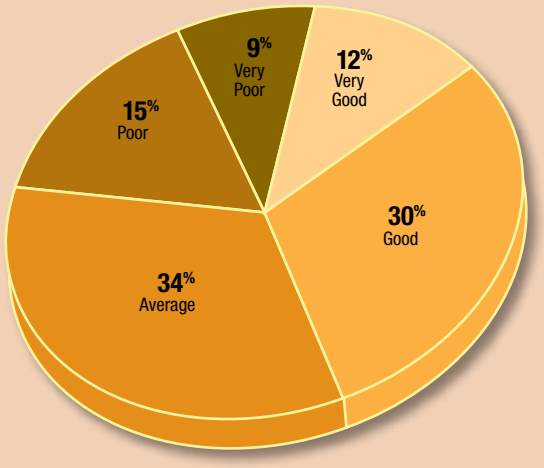
Creativity and innovation are encouraged or rewarded in my unit.



If I have an idea for a new and better ways of doing things, I have the means of proposing it for consideration.



I rate Caltrans executive management (the Director and his direct reports) on their level of open and honest communication with employees as:



Organizational Excellence Survey

Nearly 1-in-4 Caltrans employees took part in a recent Organizational Excellence survey, and their answers suggest the department is performing well when it comes to ethics, risk and communication but needs to improve its knowledge transfer policies, strategies and processes in the work unit.

Organizational Excellence is one of five main goals in the Caltrans 2015-2020 Strategic Management Plan released in March.

The Positivity Index

Survey data was analyzed to identify employee perceptions for a variety of the department's workforce issues. Ethics questions, for example, included knowledge of the department's Ethics policy (85 percent) and help line (81 percent), as well as a means for reporting ethics-related issues (71 percent). The department also received high-marks for its regular communication on Caltrans' issues and updates (62 percent). Survey statements regarding risk, as communicated in the work units, were 58 percent positive, with perceptions of risk being acted upon (managed) within work units at 50 percent (for more on what risk means in this context, see sidebar on page 33).

Issues that fell within the mid-level of satisfaction included positive perceptions of management, both executive (42 percent) and management in the work units (46 percent). The perception for adequate job training was 43 percent positive. Innovation experienced a gap between having the means of proposing a new idea for consideration (52 percent) and whether or not staff were encouraged or rewarded to be creative and innovative in their work units (40 percent).

At the bottom of the positivity index were issues such as the benefit of career development and leadership courses helping to advance careers within the department (25 percent); knowledge transfer policies, strategies and processes in the work unit (18 percent); and participation in policy or research committees (13 percent).

Survey Benefits

Most employees received e-mail invitations to participate, while Maintenance crews who don't have access to computers, received a hard copy in the mail. The response period ended June 30, with a total of 4,594 responses—about a fourth of the Caltrans workforce. Notably, almost 40 percent of survey responses were from the Division of Maintenance.

The survey data is being shared to provide transparency and accountability for processes and deliverables, and functions as a communication tool to enhance collaborative partnerships. Caltrans values these stakeholder partnerships—its control agencies, local and regional partners, and its employees and will use the data to track and encourage the improvement of these relationships. Equally valuable, is that information from this survey will help guide executive decision-making on workforce-related issues.

One of the challenges the team addressed was negativity to surveys and survey fatigue. A special effort was made to assure employees that this is their opportunity to be heard, to have a voice—that their responses will help guide the decision-making on workforce-related issues affecting them. The director is expected to continue to respond to employee questions and comments generated by the Organizational Excellence Survey—incorporating them into his town halls and videos.

How Risk Fits into Organizational Excellence

Caltrans is exposed to a myriad of risks that can keep it from realizing its mission. This exposure is found in all stages of the planning, design, construction, operation, and maintenance of the transportation system. Much of this risk manifests as hazards to its employees and road users, the assets it builds and maintains, and in the financial liabilities it assumes as an owner-operator of the transportation system.

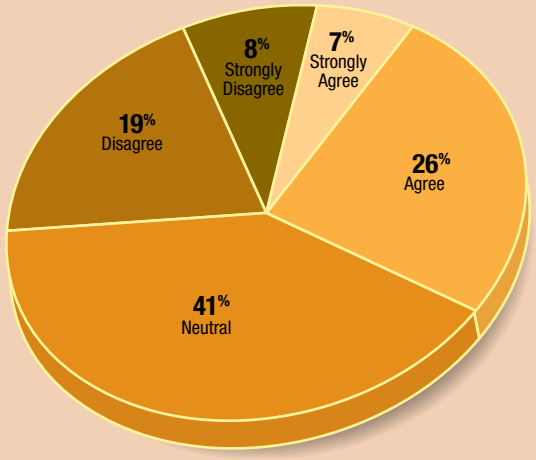
In 2012, the Caltrans Executive Board created the Office of Enterprise Risk Management with a mandate to support Caltrans achieving its objectives through the management of its risk portfolio by coordinating communication and program expertise in the context of hazard, financial, operational, and strategic risks.

Along with other risk assessment and governance activities, the risk questions of the Organizational Excellence Survey help to accomplish two objectives. One, it helps to assess risk awareness and communications at Caltrans. Two, it helps to cast a wider net for identifying the risks that Caltrans faces outside our other formal risk assessment processes. This provides insight not only into where its risks are, but also the interdependencies and correlations among them to empower the office to effectively manage the department's risk portfolio by refining, targeting, and coordinating its management activities.

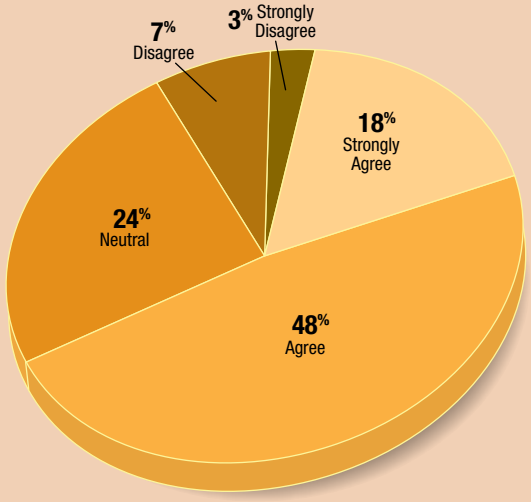
Complete survey and data.

Source: The 2015 Caltrans Employee Survey, Administration Program
Contributor: Tammy Roberts

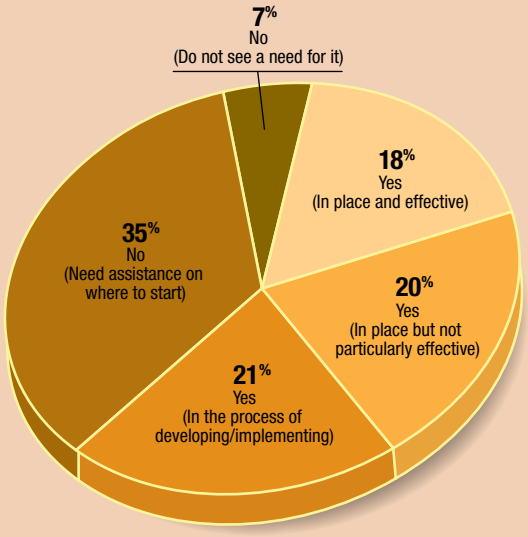
Overall communication, professionalism, and customer service levels have improved over the last year.



I know what the greatest risks are for my work unit to be successful.



My work unit has strategies, policies, and procedures in place (or an informal approach) that address transferring the knowledge (know-how) of management and/or seasoned staff.



External Stakeholder Survey

Reveals Room for Improvement

More than 80 percent of participants in a recent online survey said Caltrans is doing at least a “fair” job in meeting their needs, with 40 percent of those respondents saying Caltrans is doing a “good” to “excellent” job..

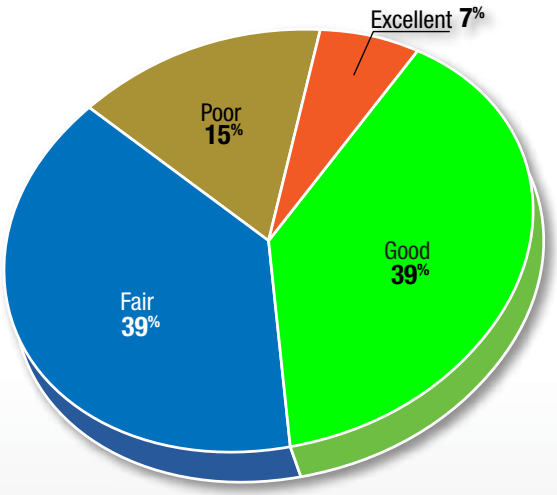
But that was just one question. Overall results of the Stakeholder Survey made clear Caltrans has room for improvement in working with its partners.

The October Stakeholders Survey is the first such poll since 2007and will serve as a baseline against which future opinions can be measured.

The online survey was announced in the previous edition of the Mile Marker and distributed by email to more than 5,000 stakeholders statewide. The 571 respondents included federal and state partners, metropolitan planning organizations, regional transportation planning agencies, local municipalities, tribal governments, contractors and consultants, the general public, media and legislative offices.

Teams that have been tasked with supporting the department’s Organizational Excellence goal will use information gathered from this survey to guide them as they develop the strategies that will improve the quality of Caltrans service to its stakeholders and continue to communicate these efforts.

Caltrans recently adopted a new Mission Statement: Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. How well is Caltrans doing in fulfilling its new mission?



The Questions

The survey questions were based on Caltrans’ performance measures as outlined in the 2015-2020 Strategic Management Plan, which set several objectives to improve the department’s role as a collaborative partner by providing excellent customer service and open and honest communication.

The data gathered in this survey reflects the diversity of California’s transportation partners in 58 counties, with the majority of respondents being local governments, consultants and contractors, with an equal number of metropolitan planning organizations and regional transportation planning agencies.

The survey asked eight main questions to gauge perceptions of how well the department is fulfilling its new mission, meeting their needs, performing, communicating, providing complete and accurate information, providing timely responses, and being a collaborative partner. Stakeholders were also asked to rate The Mile Marker and to suggest reforms or efficiencies at Caltrans.

Fulfilling new mission statement (delivered in 2015): Forty-six percent rated the department as excellent or good, 39 percent said fair, and 15 percent said poor.

How would you rate Caltrans' performance over the past year?

Meeting stakeholders' needs: 40 percent rated Caltrans as excellent or good, 42 percent as fair, and 18 percent as poor.

Performance in past year: 22 percent of respondents noted improvement, 59 percent said Caltrans stayed the same, and almost 20 percent said performance deteriorated.

Services and deliverables meeting expectations: 48 percent said Caltrans met or exceeded expectations, with almost 40 percent saying Caltrans did not. Another 12 percent said it wasn't applicable to them.

Communication: About 36 percent agreed or strongly agreed that Caltrans had made improvements to its external communications over the past year, while about 40 percent neither agreed nor disagreed and 24 percent disagreed or strongly disagreed.

The Mile Marker performance report: 43 percent of respondents gave favorable scores for the journal's content, readability, transparency, educational value, accountability and interactive content. An equal amount of respondents, 43 percent, were in the middle of the scale for favorable response, and 14 percent were on the lower end of the scale.

Providing complete and accurate information: 37 percent of stakeholders agreed, or strongly agreed, that Caltrans meets this objective. About 30 percent of respondents were neutral in their response and about 33 percent either disagreed or strongly disagreed.

Timely responses: When asked about Caltrans' staff providing timely responses over the past year, 38 percent agreed or strongly agreed, about 23 percent were neutral and 39 percent disagreed or strongly disagreed.

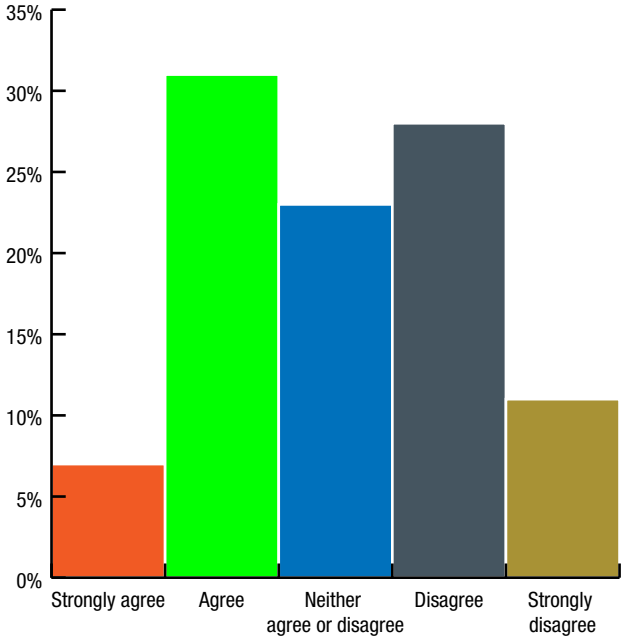
Collaborative partnership: Being a collaborative partner is an important objective for Caltrans. Forty percent of Caltrans' stakeholders either agree or strongly agree that the department is a collaborative partner. The neutral response was at 28 percent with the unfavorable responses at 32 percent.

Not all figures totaled 100 percent due to rounding.

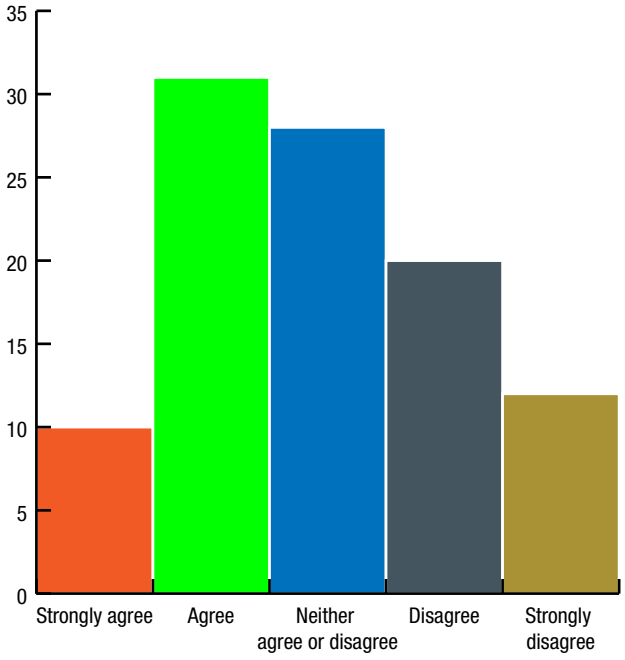
External Stakeholder complete survey and data.

Source: 2015 Stakeholders Survey, Administration Program Contributors: Tammy Roberts, Gloria Roberts, Pete Spaulding, Roy Fleshman

Caltrans' staff has provided timely responses over the past year.



Based on your overall experience with Caltrans, Caltrans is a collaborative partner.



Responsibility for Intercity Rail Corridors Changes Hands

State-Supported Intercity Passenger Rail Annual Passenger Rail Ridership Ridership (in millions)						
						Projected
Routes:	**FY 2010-11**	**FY 2011-12**	**FY 2012-13**	**FY 2013-14**	**FY 2014-15**	**FY 2040**
Capitol Corridor	1.68	1.77	1.70	1.48	1.46	3.46
Pacific Surfliner	2.75	2.66	2.69	2.67	2.80	5.04
San Joaquin	1.03	1.13	1.20	1.20	1.18	2.34
Total	**5.46**	**5.56**	**5.59**	**5.35**	**5.44**	**10.84**

The Capitol Corridor, Pacific Surfliner and San Joaquin routes – with the support of Caltrans since 1976 – provide intercity passenger rail service, operated by Amtrak, to approximately 5.4 million passengers a year, with ridership anticipated to double by 2040.

The 2040 ridership projections (see chart, above) are based on the 2013 California State Rail Plan, which plans for service improvements and expansion on all three routes as well as growth based on population increases. The 2018 plan is now being developed and will include updated implementation plans for the three intercity rail routes.

On June 29, Caltrans transferred responsibility for administering intercity passenger rail service of the San Joaquin and Pacific Surfliner corridors to the San Joaquin Joint Powers Authority (SJJPA) and the Los Angeles-San Diego-San Luis Obispo Rail Corridor Agency (LOSSAN Agency), respectively. These agencies assume responsibility for management of the operating agreement and administration, marketing and operation and maintenance of rail and related services.

This transfer is similar to action taken in 1998, when administration of the 170-mile Capitol Corridor was transferred to the Capitol Corridor Joint Powers Authority. This JPA is a partnership among six transit agencies in eight northern California counties. It was the first non-state agency to assume responsibility and oversight for state-supported passenger rail service in California.

The Capitol Corridor offers 15 weekday round-trips between Oakland and Sacramento. One round-trip extends beyond Sacramento to Auburn, and seven round-trips extend beyond Oakland to San Jose. On weekends, there are 11 round-trips between Oakland and Sacramento, with one extension to Auburn and seven round-trips to San Jose. Ridership on the corridor averages 1.5 million annually, and is the third busiest route in the nation.

The LOSSAN Agency is now responsible for administering the Pacific Surfliner route on the 351-mile Pacific Surfliner Corridor between San Diego, Los Angeles and San Luis Obispo. There are 12 round-trips between San Diego and Los Angeles, with five trips extending to Santa Barbara and two extending further to San Luis Obispo. The Pacific Surfliner is the second-busiest intercity passenger rail corridor in the U.S., with an annual ridership of more than 2.7 million.

The SJJPA is now responsible for administering service on the San Joaquin route from Sacramento and Oakland to Bakersfield. Six round-trips operate between Oakland and Bakersfield (315 miles) and two round-trips between Sacramento and Bakersfield (282 miles). All six round-trips have dedicated bus connections between Bakersfield, Los Angeles and other points throughout Southern California. On the north end, buses at Stockton connect passengers on Oakland-bound trains to Sacramento and passengers on Sacramento-bound trains can board a bus at Stockton to Oakland, thus providing six daily arrivals and departures to both northern terminals. Additional connecting buses provide feeder service to communities throughout the north end of the state. The San Joaquin is the fifth-busiest route in the nation, carrying more than 1.1 million riders annually.

Caltrans retains responsibility for the overall planning, coordination and budgeting of the state's Intercity Passenger Rail Services. This includes:

- Developing budget requests for the service through the state budget process, in consultation with the Joint Powers Authorities (JPA).
- Ensuring that the three intercity passenger rail services connect to one another and to the planned high-speed rail routes.

Caltrans retains some capital improvement program functions, including the preparation of the Interregional Transportation Improvement Program. Caltrans Capital Improvement management functions varies by corridor.

Agency Adopts Performance Standards

The Intercity Passenger Rail Act of 2012 requires the California State Transportation Agency (CalSTA) to establish a set of uniform performance standards for all corridors and operators to control costs and improve efficiency of state-supported intercity passenger rail services. Uniform Performance Standards were adopted by CalSTA on June 30, 2014. These standards were built from the following measures:

- Usage: Measured by passenger miles and ridership.
- Cost Efficiency: Measured by farebox recovery and total operating cost per passenger mile.
- Service Quality: Measured by endpoint on-time performance (see table, below), all-station on-time performance and operator responsible delays per 10,000 train miles.

These Uniform Performance Standards serve as a tool to evaluate JPA management of intercity passenger rail service. Specific targets have not yet been set for all measures.

This table illustrates Caltrans' on-time performance for three corridors, with an average on-time performance for all routes at 83.3 percent for fiscal year 2014-15. Targets 90% by 2020.

State-Supported Intercity Passenger Rail On Time Performance

Routes:	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Capitol Corridor	95.5%	93.8%	94.7%	95.5%	93.2%
Pacific Surfliner	77.6%	75.4%	82.4%	77.6%	77.6%
San Joaquin	90.7%	88.5%	79.1%	77.7%	71.4%
Statewide	**87.9%**	**86.1%**	**87.2%**	**85.5%**	**83.3%**

Source: Division of Rail
Contributors: Crystal Ortiz, Lee Hower, and Scott Kingsbury

Photo provided by Patrick Kyo

Previously Reported Data

Performance Measures	Targets		Target Met	Current Period (CY 2013)	Previous Period (CY 2012)	Period Change	Current Period Trend	Desired Trend
Per capita vehicle miles traveled.	Reduce per-capita VMT 3% per year, so that by 2020 it is 15% lower than it was in 2010. (Most current data from calendar year 2013; previous period data from calendar year 2012) *See back page for Caltrans Districts Map*	District 1	–	-10.63%	-10.57%	-0.06	↓	↓
		District 2	–	-9.76%	-8.97%	-0.79	↓	↓
		District 3	–	-6.88%	-8.04%	1.16	↑	↓
		District 4	–	-8.25%	-5.90%	-2.35	↓	↓
		District 5	–	-10.12%	-10.22%	0.10	↑	↓
		District 6	–	-7.34%	-9.84%	2.50	↑	↓
		District 7	–	-8.42%	-8.25%	-0.17	↓	↓
		District 8	–	-9.11%	-8.96%	-0.15	↓	↓
		District 9	–	-13.72%	-11.50%	-2.22	↓	↓
		District 10	–	-8.37%	-7.91%	-0.46	↓	↓
		District 11	–	-11.21%	-11.74%	0.53	↑	↓
		District 12	–	-10.15%	-10.53%	0.38	↑	↓
Caltrans' contracts and procurements awarded to small businesses	Award 25% annually		✓	28.4% (FY2014-15)	28.24% (FY2013-14)	0.16	↑	↑
Caltrans' contracts and procurements awarded to disabled veteran business enterprises	Award 5% annually		–	3.83% (FY2014-15)	3.79% (FY2013-14)	0.04	↑	↑

The performance measures above have not changed since their display in the 2015 Third Quarter issue. They are printed here due to space limitations.

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California Department of Transportation
http://www.dot.ca.gov

Mile Marker Archives
http://www.dot.ca.gov/MileMarker/index.html

QuickMap
http://quickmap.dot.ca.gov

Mission, Vision, Goals
http://www.dot.ca.gov/hq/paffairs/about/mission.htm

Caltrans Social Media
http://www.dot.ca.gov/socialmedia

Reports to the California Legislature
http://www.dot.ca.gov/reports-legislature.htm

2013 10-Year SHOPP Plan
http://www.dot.ca.gov/hq/transprog/SHOPP/prior_shopp_documents/10yr_SHOPP_Plan/2013_Ten_Year_SHOPP_Plan.pdf

Division of Maintenance
http://www.dot.ca.gov/hq/maint

Complete Streets Program
http://www.dot.ca.gov/hq/tpp/offices/ocp/complete_streets.html

Smart Mobility Framework
http://www.dot.ca.gov/hq/tpp/offices/ocp/smf.html

Freight Mobility Plan
http://dot.ca.gov/hq/tpp/offices/ogm/cfmp.html

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